

IN THE UNITED STATES DISTRICT COURT FOR THE
SOUTHERN DISTRICT OF NEW YORK

Midway Manufacturing Company :

vs. :

The Magnavox Company

and

Sanders Associates, Inc.

FILED

OCT - 8 1976

74 Civ 1657 CBM

Continued Deposition
of William T. Rusch,
Sixth Day

H. STUART CUNNINGHAM, CLERK
UNITED STATES DISTRICT COURT

IN THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF ILLINOIS, EASTERN DIVISION

The Magnavox Company, et al :

vs. :

Bally Manufacturing

Corporation, et al :

Consolidated Actions

74 C 1030 ✓

74 C 2510 ✓

75 C 3153

75 C 3933

Continued deposition of William T.

Rusch taken pursuant to subpoena and notice at the
office of Sanders Associates, Spit Brook Road, South

ERNEST W. NOLIN & ASSOCIATES

General Stenographic Reporters

369 ELGIN AVE., MANCHESTER, N. H. 03104

TELEPHONE: 623-6906

Nashua, New Hampshire, on Wednesday, March 10, 1976,
called & commencing at 10:20 o'clock in the forenoon. Company

and Bally Manufacturing Corp. PRESENT: being first duly sworn,

was examined and testified as For Midway Manufacturing
Company and Bally Manufacturing
Corporation: would like to ask the

Examiner to ask Mr. Donald L. Welsh, Esq. certified

copy of the file was For Sanders Associates, Inc.
and Magnavox Company:

Mr. Williams will be asked to certify a copy of the
James T. Williams, Esq.

file concerning patent No. 28507.

For Atari, Inc.:

Examiner, and documents above-

Edward S. Wright, Esq. Sanders'

Exhibit, No. 47 and 48 for

For Sanders Associates:

(Interrogatories by Mr. Louis Etlinger, Esq., and

Richard I. Seligman, Esq.

Mr. Busch, yesterday you went through exhibit 46 which

Stenotype Reporter:

is identified as a patent disclosure prepared by you,

Barry G. Nolin, C.S.R.

and you indicated which features you did not consider

to be original I N D E X You also stated that you

are the inventor of patent No. 28507.

Sanders' Exhibits: Page

47 of 3 features

48 2 original

49 16

50 16 at some time

since I read this in that much detail.

MR. WILLIAMS: I object to the

question. The WILLIAM T. RUSCH speaks for itself,
called as a witness in behalf of Midway Manufacturing Company
and Bally Manufacturing Corporation, being first duly sworn,
was examined and testified as follows: any recollection,

yourself, as to what MR. WELSH: I would like to ask the
reporter to mark as Sanders' Exhibit 47 the certified
A. copy of the file wrapper and contents of the patent
No. 3659284 and as Exhibit 48 a certified copy of the
file wrapper and contents of reissue patent No. 28507.

Q. From your recollection (Whereupon, the documents above-
referred to were marked Sanders'
were made possible Exhibits Nos. 47 and 48 for
Identification.)

Exhibit 46 do you recall are disclosed in the 284
(Interrogatories by Mr. Welsh)
patent?

Q. Mr. Rusch, yesterday you went through Exhibit 46 which
is identified as a patent disclosure prepared by you,
object of this question for the same reason, subject
and you indicated which features you did not consider
the subject to a novel, that as to what he recalls,
to be original with you. You also stated that you
but you may answer the question if you can.
are the inventor of patent No. 3659284 and had read
the patent. Would you tell us which of the features
of Exhibit 46 which you considered to be original
with you are disclosed in that patent?

Q. I'll have to read it again now. It's been some time
since I read this in that much detail.

MR. WILLIAMS: I object to the

question. The document or patent speaks for itself.
There's no reason to have the witness make that
comparison. electronic control feature, that I tried to

Q. (By Mr. Welsh.) Do you have any recollection,
yourself, as to what that patent is directed to
without re-reading it again at this time?

A. I believe that covered the so-called new system
we had been discussing in Exhibit 46 and games and
features made possible by that system. detail.

Q. From your recollection, what games and features that
were made possible by the new system described in
Exhibit 46 do you recall are disclosed in the 284
patent? In Exhibit 46, were they not?

A. I believe that's MR. WILLIAMS: I guess I also

Q. Object to this question for the same reason, subjecting
the witness to a memory test as to what he recalls,
but you may answer the question if you can.

THE WITNESS: I believe many of
the games which required electronic control of the
spot were included.

Q. (By Mr. Welsh.) Could you be more specific as to
which games? to a suitable document for filing with

A. I think I'll put it this way: I don't remember,

specifically. I would believe that I had covered the ping pong game in that patent. I think, in addition to this electronic control feature, that I tried to cover games involving the bounce of the spot from walls and/or paddles. It's quite probable that some version of a handball game was included.

Q. Do you recall any others?

A. Not really. It's been quite a few years since I did, really, read that patent, in any kind of detail.

Q. The features you did mention were games including ping pong, bounce of the spot from walls and/or paddles, and a version of handball all were included in your patent disclosure of Exhibit 46, were they not?

A. I believe that's true.

Q. Exhibit 46 is dated February 2, 1968, and the filing date of the 284 patent was May 29 -- I'm sorry, May 27, 1969, a period of over a year and four months.

Do you know of any reason why there was that time lapse between your patent disclosure and the filing of the application?

A. No, other than the time it took to go from the material in Exhibit 46 to a suitable document for filing with the patent office.

what does disc mean?

- Q. Now, you've been patentee, named as inventor in other patents, have you not? patent.
- A. Yes. MR. WILLIAMS: Well, I object to
- Q. Has there been a similar time lag in the preparation of the application after your disclosure in those other instances? patent document, itself, speaks for
- A. I don't remember. There may have. There may have been. any kind of a comparison between the two
- Q. A file produced on behalf of Sanders, having the title D-2580: "TV games - dice -- new system. William T. Rusch." And with a rubber stamp in red ink with the words "work copy" stamped on it in several places includes copies of drawings which were marked as Exhibits 23-160, 23-161, 23-162 and 23-163. That same file number is also applied to another folder which was produced, which indicates that it is the file of the 284 patent. Do you know whether these Exhibits 23-160 through 23-163 depict the circuitry which is the subject matter of the 284 patent?
- A. I believe we covered this before. At least some of this material is that material, yes. a box marked
- Q. I don't believe we covered it in relation to this patent, specifically. I wonder if you would, now, is

* ? w/r 5/26/76

what does dice mean?

Q. tell us, if you can, what circuitry shown on these exhibits is not in the patent. A. Of what you had in mind when you said MR. WILLIAMS: Well, I object to the question. The witness has given detailed testimony as to what is included in Exhibits 23-160 through 23-163, and the patent document, itself, speaks for itself, and there is no reason to have this witness make any kind of a comparison between the two material documents. patent.

Q. MR. WELSH: You may answer the question. A. Some is in the patent.

Q. Yes, I said at least. THE WITNESS: May I have the question again, please? A. My question to ask what did you have in mind is (The last question was read back by the reporter.)

Q. And again, I will. THE WITNESS: These are Exhibit 23-160, 161, 162 and 163?

Q. (By Mr. Welsh.) Right. We have discussed previously

Q. Now, by being in the patent, you mean is this back exact same circuit in the patent or -- for instance, on the patent, first page, is shown a box marked spot 1 horizontal slicer. I see some circuitry on these other exhibits that perform that function. Is

misquote through wrong punctuation W/P 5/26/76

that what you are after? on the first page of the

Q. I am really after the specifics of what you had in mind when you said at least some of the circuitry of those exhibits is not in the patent. the function

A. I said was not in the patent. ^{? w/r} Now, to

Q. Yes. Inue, the question is to locate everything that is in the patent. MR. WILLIAMS: I think I object to

Q. the question. I believe he said some of the material

A. is in the patent. ibit 23-161, I believe the circuit in the upper left. THE WITNESS: That's what I intended.

Q. (By Mr. Welsh.) Some is in the patent? as patent.

A. Yes, I said at least some is in the patent. in

Q. Well then, I'll rephrase my question to ask what did you have in mind in that answer as to what is in the patent? ve the three circuits to the left center of

A. And again, I will try to be more specific. I will define that, for instance, on Exhibit 23-161 there is some circuitry which we have discussed previously in the center of the page employing two back to back diodes which are a slicer. ^{w/r} I don't know, I will ^{5/26/76} look, but I don't know right now whether that exact circuitry is in this patent, but that circuitry performed the function, for example, of the spot 1. ^{Punct.}

*misquote
through wrong Punctuation w/r 5/26/76*

horizontal slicer shown on the first page of the patent. When I say it is in the patent, I mean at least to that extent that it was a reduction of re-

practice -- reduction to practice -- of the function shown by those blocks on the patent. Now, to

continue, the question is to locate everything that is in the patent and in these exhibits?

That was the question. So far as you know,

Starting with Exhibit 23-161, I believe the circuit in the upper left-hand corner is the horizontal sync/saw tooth generator labeled No. 31 on the patent.

I believe the circuit right underneath that in Exhibit 23-161 is the vertical sync/saw tooth generator labeled 32 on the first page of the patent.

I believe the three circuits to the left center of Exhibit 23-161 are spot slicers as shown, for example, by box 36 and box 29 on the patent. I believe the

circuits to the right center of figure 23-161 are the, so-called, joy stick integrators shown at the bottom of page 10 of the patent in figure 13. I

believe the circuitry at the lower left of 23-161 based around transistor Q8 and including a coil

labeled L1 is the RF oscillator shown in figure 4

of the patent. I could in preparing the final patent

Q. In order to avoid further delay here, I believe you stated that 23-160 through 23-163 represented a reduction to practice of your concepts, is that correct?

A. I believe so, at least most of them. I'm not sure where he

Q. The date of those documents is 12/22/67, which is

just a few days before your patent disclosure date, that is, the date of Exhibit 46. So far as you know,

A. do these exhibits represent the reduction to practice of the material which you described in Exhibit 46?

A. I believe they do, at least in considerable part.

A. I've been puzzling over a few of these circuits.

Q. It's been a long time. I think I could figure it out, but I do believe what you say is true. 12, 1969,

Q. About the time the application for the 284 patent was filed in May of 1969, do you remember having anything to do with that application? draft discloses

A. At the time it was filed at the patent office?

Q. Yes. Any changes can be made by writing them in

A. Not at the date it was filed. of the circuits repre-

Q. I said on or about that time. not be found, the we

A. On or about? Well, before it was filed I believe I worked with Sanders Associates Patent Department to

help as much as I could in preparing the final patent application to the extent of checking diagrams, and I believe Mr. Seligman prepared this, although I'm not sure, but I seem to remember coming down here to South Nashua and explaining to him things where he might have had some doubt as to how things worked.

Q. Do you recall referring to these drawings, Exhibit 23-160 to 163 or copies of them?

A. I don't recall. MR. WILLIAMS: I object to the

Q. Do you recall studying any drafts of the application for the 1284 patent?

A. I think I did.

Q. I show you what appears to be a copy of a message to you from Mr. Seligman dated February 12, 1969, which states, "Submitted herewith is a draft patent application. Please review the draft and give me your comments.) Please check that the draft discloses your invention both to completeness and accuracy of details. Any changes can be made by writing them in or by an attachment. If any of the circuits represented by block diagrams cannot be found, the we must have disclosure thereon in this application."

A. well as you people, (Document handed to the witness

then?
wfr
5/26/78

by Mr. Welsh.)

Q. (By Mr. Welsh.) I show you that message and ask you if that refreshes your recollection as to whether you reviewed the draft of the application?

A. This seems to confirm what I said before, that I thought Mr. Seligman had prepared this, and I seemed to remember helping.

Q. Did you review the draft carefully?

A. I think it would be. MR. WILLIAMS: I object to the question. It calls for a subjective opinion of what carefully means. Carefully may mean something entirely different to the interrogator than it does to Mr. Rusch or whoever might read this transcript sometime later. The question is vague.

THE WITNESS: Shall I answer? I don't remember how carefully I reviewed it.

Q. (By Mr. Welsh.) Have you had any custom with respect to care exercised in the review of applications for patents filed in your name as an inventor?

A. Yes, I think I've tried to see that they were technically correct. When it had gotten to the long, legal jargon, which I don't really understand as well as you people, I trusted our patent department

to do the right thing.

Q. By the long, legal jargon, do you mean the claims?

A. Mostly, yes.

Q. Did you make it a practice to examine the descriptive material carefully?

A. Usually, yes, I believe so.

Q. Do you have any reason to believe you did not follow that practice here?

A. I think it would depend on the date of this message, whether or not I was still working for Mr. Baer, in that if I were still working for him ^{WR} I would have officially had considerable time to review this very carefully. If it was after that time, I might have had other more pressing duties which would have made the review somewhat less thorough.

Q. I ask you to go through the drafts which are in that file identified earlier as D-2580 with stamped legend "work copy" on it and see if any of the interlineations in any of those papers in that file is in your handwriting?

A. Let me ask this officially. There are two drafts here. Have we distinguished which is which, and shall I go through both of them?

PUNCT.
WR
5/26/76

Q. I'd like to have you go through all the papers just to see if there's any notation on any of them.

A. How do I distinguish from any of them?

Q. Well, perhaps, you'll find you don't have any. Have you already found some in your handwriting?

A. All right. I'll --

A. I'll just leave the MR. WELSH: We can take a short recess.

Q. what we'll probably do is mark the whole draft as an exhibit. (Whereupon, at 11:00 o'clock, A. M., a short recess was taken.)

A. I pulled the pages out where I found my handwriting on these. In these figures there are some pages, but being they AFTER RECESS 11:10 A.M. didn't pull them out. I can go through them one by one if you like.

Q. But there are some THE WITNESS: All right. There's a page which has no page number on it, but it comes right after page 3 in this package without the pink paper connected to the front. The top of this page says "Drafted - 2580 RIS:lz 2/7/69," and about halfway down the page are some red letters saying "On a TV screen." I believe that is my writing.

Q. (By Mr. Welsh.) Have you found some other?

A. I think so, yes. 2-1 and so on, including the group

86 Q. Before you describe that, could you look through the rest of these? I'm going to, after you've looked through them all, ask the reporter to mark the ones which contain entries in your handwriting, and then would ask you to describe them in detail at that time, but --

A. I'll just leave these sticking out a little bit.

7 Q. I think what we'll probably do is mark the whole draft as an exhibit and then have pages identified just like to note that although a group of documents so you can go through.

A. I pulled the pages out where I found my handwriting on these. In these figures there are some pages, but 49-50 were not attached together, and on the 49-50 being they are stapled together, I didn't pull them out. I can go through them one by one if you like.

8 Q. But there are some pages of the drawings that contain notations? from that entire document of which they may have once been a part.

A. Yes.

MR. WELSH: It is correct, is it

Q. In your handwriting?

not, Mr. Williams, that these have been marked in the

A. Yes.

order in which they were found in the folder.

MR. WELSH: O. K. I'd like to

ask the reporter, now, to mark this group as Sanders' that's correct, yes.

Exhibit 49 and each page starting with the top page

numerically as 49-1 and so on, including the group

constitute Exhibit 49-1 to 49-100, the stapled group.

of drawings which are stapled together. Then they were

taken from the folder (Whereupon, the documents above-referred to were marked Sanders' together. They were Exhibit Nos. 49-1 through 49-70 for Identification.)

other documents of the Exhibit 49.

MR. WELSH: Could we also mark this?

MR. WELSH: The record should also

MR. SELIGMAN: Yes.

show that I asked the reporter to mark as Exhibit 50

(Whereupon, the document above-referred to was marked Sanders' dat. 1 Exhibit No. 50 for Identification.)

2/12/69, that being the message which I read sometime

MR. WILLIAMS: For the record, I'd

earlier in this morning's session.

just like to note that although a group of documents

MR. WILLIAMS: Mr. Busch has just have been marked as Exhibit 49 as they existed in the pointed out that it may be beneficial to note that file from which they were taken, documents 49-1 through Exhibit 50 was under a clasp in the folder from which 49-46 were not attached together, and on the record was taken another document which appears as though it so far there's no indication they collectively form might be a draft of that application different from a single document or that, if they do, that they Exhibit 49. It was under that same clasp. They form that entire document of which they may have

MR. WELSH: I might also note that once been a part.

the witness examined all of the documents under the

MR. WELSH: It is correct, is it clasp at my request which included the request that not, Mr. Williams, that these have been marked in the he note any of such documents which contained any order in which they were found in the folder?

notations made by him.

THE WITNESS: As far as I know,

(By Mr. Welsh.) Do I understand correctly, Mr. Busch, that's correct, yes.

that all of the rest of the documents in this file,

MR. WELSH: And the drawings which particularly those under the fastener, do not contain constitute Exhibit 49-47 to 49-70 were stapled together?

notations in your book. THE WITNESS: Yes, when they were taken from the folder this morning, they were stapled together. They were not stapled to any of the other documents of the Exhibit 49.

Q. (By Mr. Welsh.) MR. WELSH: The record should also show that I asked the reporter to mark as Exhibit 50 a copy of a message to Bill Rusch from R. Seligman, dated 2/12/69, that being the message which I read sometime earlier in this morning's session.

Q. MR. WILLIAMS: Mr. Rusch has just pointed out, that, it may be beneficial to note that Exhibit 50 was under a clasp in the folder from which was taken another document which appears as though it might be a draft of that application different from Exhibit 49. It was under that same clasp.

Q. MR. WELSH: I might also note that the witness examined all of the documents under the clasp at my request which included the request that he note any of such documents which contained any notations made by him.

Q. (By Mr. Welsh.) Do I understand correctly, Mr. Rusch, that all of the rest of the documents in this file, particularly those under the fastener, do not contain

notations in your handwriting or made by you?

A. I believe that's true. I didn't find any I could definitely call my handwriting. (Documents handed to the witness by Mr. Welsh.) "two" in that same line appearing

Q. (By Mr. Welsh.) Now, Mr. Rusch, would you please go through these documents which have just been marked noting by number each of those which contains some entry made by you, and with respect to each would you note whether all of the changes on the page were made by you, and, if not, which ones you did make?

A. I see one on page 49-2. In red are the words, "or in 'net' can be done electronically" with an arrow pointing down to where I thought that phrase should go. The phrase has been crossed out in regular lead pencil, but I'm pretty sure that's my writing in red. There are other changes on the page in pencil which don't appear to be my handwriting.

A. All right. On page 49-5 -- or, rather, letter Exhibit -- is it supposed to say Exhibit 49-5?

Q. Or page. Either one is fine.

A. There is a small arrow pointing up after the word "providing" about halfway down the page, and the arrow

points to the words "on a TV screen." I believe that was my handwriting. It's quite probable that a few words later on where "on a TV screen" was crossed out in red that I made the red crossing out mark. red There's a word "two" in that same line appearing before the word "paddles" which is crossed out in red. Naturally, I can't really tell if those red first crosses were mine, but I assume while I was adding these other words that I did that, but at least the "on a TV screen" looks like it is my writing. to the best of my knowledge On page 49-8 there are three small red arrows pointing up for insertion of words. And in three cases the words "apparatus for" appear. I recently believe all that writing in red is mine. The same applies for Exhibit 49-9 where the same two words red and an arrow appear in red. Shall I keep "these" separated? red pencil. I believe I did that. As I

Q. No, that won't be necessary. other corrections on

A. All right. On page 49-10, again, there are red letters

Q. and an arrow. The words in red are "use consistency

A. in numbering," and "numbers confusing. Use? 20,

Q. 16, 17, and 201, 202." I believe this is my handwriting.

the only ones which On page 49-11 there are two red

words which appear to have been crossed out at a later time by pencil. The words are "Speak English." I believe I wrote them. On page 49-12, in the middle of the page, the word "sticks" is crossed out in red pencil, and above it is written the word "players." I believe that was my doing. The corrections I have on page 49-13 underneath the first paragraph are some words written in red. These words are: "It could also be generated electronically in the video control system." That is my writing, to the best of my knowledge. There are a few other corrections on that page made in red. I can't really say I did them. It's possible, since I was, apparently, using a red pencil at the time. On page 49-14 there's a small red arrow pointing upward inserting the word "alone" written in red pencil. I believe I did that. Am I still to note where there are other corrections on these pages other than mine?

Q. Yes, I think that would be a little more --

A. I haven't been doing that in all cases.

Q. Up to this time are the corrections you have noted the only ones which you think might have been made

by you? entirely 260 times the value of capacitor 39."

A. No, I forgot to do that part. I'm sorry. I think in the middle of the MR. WILLIAMS: Would you repeat the question? A. I see two other corrections on the page. In the second THE WITNESS: Are the corrections I noted the ones -- yes. Let me clarify that. The corrections I have mentioned which I described as being made by me, I made. I think in the beginning few pages I may have referred to another few corrections which I described as being done by someone else. From now on I'll try to describe both of them. time to break for 1 On page 49-14 I think we've covered the red word "alone" as being mine. In the fourth line from the top, the word "these" had been inserted in pencil. I do not think that word was inserted by me.

2. On page 49-15, in the middle of the page, the word "now" was inserted in red above a small red arrow. I did that. Near the bottom of the page a red line crosses out what appears to be "C_{v1}" and above that is written "capacitor 39" in red. I believe I did that. Right after the words in red are some more words written in pencil. These words are,

T. RUSCH
5/26/76

"approximately 260 times the value of capacitor 38."

A. I believe those words were written by me. I think in the middle of that page the phrase "E_{h1}" crossed is in my writing. I see two other corrections on the page. In the second paragraph a pencilled "V" had been inserted to clarify the spelling of a word, to correct the spelling, and lower down the page the page number "29" was added above the word "slicer." I think the "V" may have been my doing. I don't think the 29 was. I think that is by Williams.

MR. WELSH: This might be a good time to break for lunch. I see it is 12:00 o'clock.

"All right," Williams (whereupon, at 12:00 o'clock, noon, a recess for lunch was taken.) Williams stepped out and the door was closed for the afternoon. Williams returned. I believe that is my writing. I don't think I wrote it. On the page, the AFTER LUNCH 1:45 P. M. Williams returned by the word "slicer," Williams. I believe that is by Williams.

Q. (By Mr. Welsh.) Could we resume with your examination of the pages of Exhibit 49 noting any entries which were made by you and, also, whether there are other entries which you did not make. With respect to those other entries, I don't think it would be necessary

Can't correct this stuff.
without the exhibits! William
T. Rusch
5/26/76

23

to note them in detail other than to be sure that
they are identified.


- A. Let's see. On page 49-16 the word "in" is crossed out and "into" is written above it. I believe I did that. The words "might be" are crossed out, and the words "In some instances is" were inserted. I believe I did that. There are other corrections on that page which I don't believe are in my writing. On page 49-17 the word "now" was pencilled in, and the words "in detail." I think that is my writing. is circled in pencil, and the Page 49-18, the word "slices," s-l-i-c-e-s, was crossed out and changed to of the "slicers," s-l-i-c-e-r-s. I think that is my handwriting. The words "diode junction" were crossed out and the words "side of the diode pair" were inserted. I believe this is my writing. A few words further on, the word "junction" is crossed out and replaced by the word "side," s-i-d-e. I think that is my writing, as, possibly, is the changing of the number #50 to #52. I believe that is my writing. I'm not sure about the other. At the bottom of page 49-19 the phrase "across the screen" was crossed out and inserted earlier in the same sentence in my writing. A phrase

NOTE again: I do not have the exhibits in front of me while I correct this. Therefore I cannot tell if the quotes from them are correct.

under the first sentence at the top of that page appears to be in someone else's writing, pencilled phrase, that is. There are a few other minor corrections on that page which I don't think are mine. At the top of page 49-20 the word "the," t-h-e, was crossed out, and the word "one," o-n-e, was pencilled in. That, possibly, is my writing, but I'm not as sure as with some of the others.

On page 49-22, in capital letters is typewritten the word "flip flop." That is circled in pencil, and the words "lower case" written next to it. I think I did that. Near the bottom of the page, the words "can be" were crossed out, and the words "are often", inserted in pencil. I think those words and, possibly, a comma in the line above that may have been done by me, although, naturally, the comma is rather hard to identify. On page 49-23 an insertion was made, to wit: the words "the outputs of the circuit of figure 11A." I believe that is my writing. I'm not sure about the other writing on that page, the other corrections. On the page another phrase in red had been inserted in. On page 49-24, which is a yellow.

W. Rusch
5/26/76


 page containing handwriting, there are some words at the bottom in red ball point, ^{OK WJR} I think. I believe these are in my writing. The words are: "Pulses whose amplitudes are proportional to it" in the third line from the bottom, the phrase is crossed out and another phrase is inserted in red pencil. The phrase is: "The pulse width is that." I think that is my writing. the differentiating capacitors rather than before that. I On page 49-25, all the corrections in red seem to be in my writing. These corrections are: underneath the fourth line, "The differentiator is comprised of capacitors C1 and C2, and feedback amplifier 78." I see that someone has written the number 190 over my C1 and 191 over my C2. In the left margin is an arrow in red with the words "Assign numbers to C1 and C2." I believe that is my handwriting. The aforementioned arrow points to a phrase in red, "C1 and C2." The red part, I believe, is my writing. This phrase has been crossed out in blue ink, and the numbers 190, 191 were inserted thereafter. I do not think the blue ink part was mine. Further on down the page another phrase in red had been inserted in what appears to be my writing. The

X w/r

phrase is: "of the spot which makes coincidence with the hit spot." On the next line under that there seems to be some corrections made in blue ink. I believe it says "to ground." This does not seem to be my writing. Turning the page 90 degrees in a clockwise fashion, I find at the side an arrow in red with the following words: "Switching is accomplished following the differentiating capacitors rather than before them." I believe that those words and the arrow were done by me.

Exhibits 49-26 and 49-26A are taped together as they were when we started here today. I don't see anything in the top exhibit, 49-26, which looks like it is in my handwriting. I believe all the red writing in the lower page, Exhibit 49-26A, is my handwriting. Would you like me to read all that, Mr. Welch?

Yes, for the record, please.

"When either 'hitting' spot makes coincidence with the 'hit spot' a coincidence pulse from multivibrators 81 or 82 allows the bilateral gates 92 and 93 to pass positive or negative $\frac{dHn}{dt}$ and $\frac{dVn}{dt}$ pulses to stretching capacitors 94 and 95 respectively. After

the coincidence pulse ends ---"now there is a phrase
that's crossed out. That phrase is: "Capacitors 94
and 95." Continuing after the crossed out phrase
are the words "The bilateral gates return to their
open or high impedance state, and the voltage on
capacitors 94 and 95 decay at a rate determined by the
capacitors and resistors 106 and 107. *They were*
circled in red and The stretched pulses at capacitors
94 and 95 are coupled to integrators 90 and 91. The
outputs of the integrators are voltages e_h and e_v .
These voltages become the control voltages for the
hit spot. *and lines done in red are my work. Starting*
with the first one. The resultant effect is that the
hit spot moves in the same direction in which the
hitting spot is moving when coincidence is made. If
hit hard, the hit spot moves rapidly and far. If the
hitting spot is moving slowly at coincidence, the
hit spot is merely nudged a short distance and moves
slowly." Then there is a red arrow pointing down to
the bottom of the page. Beside it are the words *hit*
"(Continues pencil writing.)" Before we leave this
page, somewhere up about the middle of Exhibit 49-26A
is the word "spot" right before a tear in the paper.

still can't correct all this
junk without the exhibits
I therefore do not vouch for
its accuracy.

28

W/P
5/26/76


It looks like somebody made that word clearer by using --
it looks like -- a black pen. I don't know whether I
did that or not. I may note that Exhibit 49-26 does
seem to be a full yellow piece of lined paper. At
the bottom of it underneath where Exhibit 49-26A is
taped are some notations in red. I believe I did think
that. About seven lines of pencil writing were
circled in red and crossed out. To the left of these
lines is an arrow in red and the words, which appear
to be my writing, "Replace with attached."

Now, on page 49-27 I believe the
entries and lines done in red are my work. Starting
with the first one, about a third of the way down
the page is the phrase in red, "or a billiard ball,
bouncing from a cushion." A few lines further down
a sentence in my handwriting was inserted. The
sentence is: "When the spot reaches the edge of
the screen, switch 104 closes and 105 opens." In that
red sentence it looks like the word "hits" was
crossed out and replaced by "reaches." A little bit
further down the page, two words are inserted in red.
These words are: "Thus, now," and in that same line,
the words "to the integrator" were inserted in red in

Not corrected
WPD 5/26/74

what I believe to be my handwriting. In the lower right-hand portion of the page in red, are the words "number these." I believe that is my handwriting, and that the circle around these words and the associated red arrow were done by me. I see a blue ink line crossing out these two words. I don't think I did that. In the line that that red arrow points to are several corrections. In blue ink are the words "and 192, 193." I don't think I did that. However, in red are the words "And K_1 and K_2 ." I believe that is my writing.

On page 49-28 are corrections in red. I think all or, at least, most of these are in my handwriting. Specifically, in the first line, the word "pulse" was inserted in red. I think that is my handwriting. In the second line, the word "is" was inserted in what appears to be my handwriting. In the third line, the word "comprises" was changed to "comprised" by the addition of a red "D" at the end of the word. Right after that correction is the word "of" in red. I think I did both of these. It's rather hard to identify a red period as one's handwriting, but in the context of what we're doing here,



I believe the period following the number "181" and the red ink crossing out of the words "at the emitters thereof," all crossed out in red, a capital "A" crossed out in red, the change of the small "s" in "signal" to capital "S" written in red and changing that word from signal to signals by adding a small "s" at the end in red I believe I did. At the end of the fifth line begins a red line which goes from the right of the word "spot" underneath that fifth line all the way across the page to the left and ends in an arrowhead pointing to the following words: "Are obtained from the two sides of the coincidence." "multivibrators and --" then there is another red arrow pointing up to the word written in red. The word is "are," a-r-e, and it was written above or over a pencilled word "is," i-s. I think all those changes beginning with the red line after "spot" at the end of the fifth line and continuing through the word "are" were done by me. In the seventh line, after the second word which is "shown," s-h-o-w-n, a red comma was inserted, and a phrase added in red in what appears to be my handwriting. The phrase is: "negative

X 20R

pulses turning 181 on, and positive pulses turning 180 on." In the next line the word "are," a-r-e, was inserted in red. A "D" was added in red to the word "comprise," and an insertion in red of the word "of" appears after the inserted "D". I believe those were my corrections. Several lines down, before the word "diodes 182," a correction in red was made, the word being "zenier," z-e-n-i-e-r. I believe that was my writing. Let's see. Several lines down in the line beginning with the word "voltage," a correction in red pencil was inserted after that word. The correction is: "(For example, zero volts or plus 6 volts.)" I believe that is my writing. In the next line in red are the words "to a given state," an insertion which I think I made. Several lines further down, after the number "185" is an addition written in red. I believe this is my handwriting. The addition says: "To insure direction of the 'hit' spot."

In cases like in this particular correction where there are quotation marks around the word "hit," I haven't been noting all of them. I trust people can see them, and know what I meant.

Q.

O. K.

X W R

- A. In the fifth line from the bottom of this Exhibit 49-28 is another insertion in red which I believe I did. The words inserted were "A failure to flip correctly." Turning the page sideways, is another phrase in red which I think I inserted. It says: "If the flip flop were set in the wrong state, the hit spot would move 180 degrees from the desired direction." In the ninth line from the top of that page a phrase was inserted in pencil. The phrase is: "hitting spot control." I do not recognize that as being in my handwriting. word, "negative," had the first letter
- Q. Go on, please. cap N to a small n in red. I don't
- A. On page 49-29, which seems to be a typewritten white page stapled to a yellow page, I see a pencil phrase in parentheses which seems to be in my handwriting. The phrase is: "Applied as the small e_n and small e_v inputs to the spot slicers." "S" was done by me or not I would guess; I would. In Exhibit 49-30 a correction was made in red after the word "spot" in the first line. The two word correction seems to be in my handwriting, the words being "or ring," two words. The end of that first sentence was changed beginning with the word "clipping" and ending with the word "thereof." All

w/ 5/26/84

correct all this stuff based on heavily on particular exhibits!
5/26/76

the words from "clipping" through "thereof," S.S. including "clipping", and "thereof," were crossed out in red, and another phrase was inserted in red in what appears to be my handwriting. The inserted phrase says: "Inserting the non-square pulses at the base of shaper 55 of figure 8 and subtracting at from the original pulses to hollow them out." I believe I made that. On the fifth line, several words were crossed out in pencil. I don't think I did this. The words were "lissajous paths, wall bounce effects." The following word, "negative," had the first letter changed from a cap N to a small n in red. I don't know whether I did that or not. Under that line the word "store" has been crossed out in pencil and the word "slave" inserted in pencil. I think that word was done in my handwriting, based on the l-a-v-e part. I'm not sure if that "S" was done by me or not. I would guess, I would think that I wrote the word in. In the middle of the page, seven lines have been crossed out in pencil. I don't know who did that. It would be rather difficult to recognize such things as one's own. "ve in" were written in blue ink over pencil. I don't know whether

In the eighth line from the bottom,

wfr 5/26/76
wrong spelling

X I'm doing this on my "own
time" and still cannot
correct all this stuff based
so heavily on particular exhibits!

34

W. Busch 5/26/76

several corrections appear in red. These are E.G. for A, and the misspelled word "hockey" was corrected by changing the "T" to a red "Y." I think I did that. The second line from the bottom which starts a new paragraph was corrected with a red arrow to the last word of the previous sentence above it, meaning that a new paragraph should not have been started. I believe I made that red arrow based on the fact that these other corrections are in red, and it looks like the kind of thing I would do, but I can't be sure of that arrow. Similarly, the red arrow at the top of Exhibit 49-31 seems to be mine, but I can't be sure. However, a big red bracket, an arrow, and words in red at the bottom of page 49-31 do seem to be my work. The words say "This is important. Leave in!"

Q. What did that portion relate to? It have come.

A. That relates to this even-odd spot discernment. Those nine lines within the red bracket were crossed out in pencil. I don't think I did that. To the left of the red bracket is a blue arrow, a crossed out question mark, and the words "leave in." It looks like the words "leave in" were written in blue ink over pencil. I don't know whether I wrote that or not. I believe that

X *wp*

all the red corrections. On page 49-32, there were some minor corrections made in the first two paragraphs in pencil such as changing a 7 to an 8, crossing out a line under the word "and," changing a C to a V in order to correctly spell his word slave, this latter being done in two places. Those may or may not have been my corrections. In the first line of the third paragraph are two words written in pencil which do seem to be in my handwriting. The words are: "Follows, not pencil coins." They appear to be meant to replace the word "is" which is crossed out in pencil. In the line under that, the spelling of the mistyped word this "electronic" was noted by a wiggly pencil line. I don't think I did that. The word "function" following that word was changed to the plural by the addition of a red "S," which I think I might have done in red. Similarly, the word game in the next line was changed to the plural. Then in the following line, the word which appears to be "same," s-a-m-e, was crossed out and the word "some," s-o-m-e, inserted. I think I did that. Corrections in the last paragraph made in pencil are rather hard to identify as to whose handwriting they were. On page 49-33 I believe that

all the red corrections are in my handwriting. I only
will identify them without further saying that they
are in my handwriting. number" in red. Then there is
a star, next to the In the fourth line a sentence was
begun. This whole sentence was crossed out in pencil.
The sentence was: "This is necessary to prevent the
free-running flip flop from causing the flip flop
122 to change states when the ball is already going
in the desired direction." I can't tell if that pencil
cross-out was mine, but the red words which replace
that sentence are: "The serve flip flop 120 is
coupled to both sides of flip flop 122. With this
arrangement, if a paddle hits the ball first, the
serve flip flop can not retrigger flip flop 122 until
the ball goes off screen on the other side of the
screen.". The number 120 was changed to 121 in red.
In the next line the number "123" was crossed out in
red and, apparently, replaced by the number "125,"
which was later crossed out and changed back to "123."
I, again, feel the red scribblings were mine. Similar
action took place in the same line with the number
"124" going to "126" and back to "124." from the bottom.
The word "and", 4-5, In the next line, after the word

ball, there is a word written in red which, apparently, may have been crossed out. I think it says "not" and followed by the word "number" in red. Then there is a start next to the "not" and a pencil line going into the left-hand margin with some words written in pencil which, I think, are in my handwriting. These words are: "O. K. if put these on figure 12A." And these words, themselves, were crossed out in blue ink and, apparently, the word "ball" became identified with the blue ink number "113." I do not think the blue ink corrections were mine.

(By Mr. Delaney.) Q. In the next line, the words "pulse" and "output" were pluralized with pencilled S's, and in the following line, the "C" and "O" of covered coincidence were connected with a little pencilled squiggle. I don't know if those pencilings were mine or not as with some of the dashes that have been inserted in such words as "off-screen." And, again, further on, the pencilled pluralization of the word "knob" and a dash between "ping" and "pong." The aforementioned red corrections, which I think are mine, continue down in the third line from the bottom. The word "an", a-n, being crossed out in red. Some

XWR

kind of red notation after "133" which looks like I wrote the word "or" and then thought better of it and then crossed it out myself. In the second line from the bottom, the words "slow, free running" were crossed out in red and the number "120" was changed to "122."

f-o-r, not f-u-u-r (Whereupon, at 2:55 o'clock, P. M., a short recess was taken.) Paragraph seem to be mine, the words "began" and the change of the word "on" to "and" in exhibit 44-36, near the bottom of the page, some words were AFTER RECESS, 3:05 P.M. words are: "and even more if more spots are used." I believe this

Q. (By Mr. Welsh.) O. K. Would you please resume, Mr. Rusch? From the bottom a pencil slash appears

A. All right. Let's see. I don't know if we've covered 49-34; that.

Q. I believe not. Some minor corrections on page

A. O. K. We'll start there. I see a red number "120" inserted on that page. That may be my handwriting. I really have to go through this text in detail to see if I, probably, did that or not. I'm not sure of that. Similarly, a red comma was inserted in line 4. I may have done that. I can't tell. In the last line an "s" was added to "potentiometer." I don't think

X WPR

I did that. On 49-35, in the fourth line, the word "man" was inserted twice. I don't think that was my writing. After the first one of these words a red word then does seem to be in my writing. In about the middle of the page a red phrase "for one man," f-o-r, not f-o-u-r, appears to be in my writing. Two insertions in the last paragraph seem to be mine, the words "begun" and the change of the word "on" to "an." In Exhibit 49-36, near the bottom of the page, some words were inserted in red. The words are: "And even more if more spots are used." I believe this is my handwriting. In the last line of the second paragraph from the bottom a pencil slash appears between the words "in" and "figure." I don't think I did that. as being mine.

Some minor corrections on page 49-37 may or may not have been mine, such as inserting a comma, changing a colon to a quotation. Similary, a few pencil corrections on page 49-38 may have been mine, but it is rather difficult to say. I would think that in the middle of the page where the word "O. K." was changed to "O-R" that that was someone else's, too, handwriting. really say I recognize that little line

X WR

as being mine. Now On page 49-39 a red phrase was the inserted, to wit: "of the screen." I believe that was my handwriting. Other minor corrections on that page in pencil may or may not have been mine. We're only looking for the pages where I see corrections in my writing, correct? to a red "a." I think I did that.

- Q. That's right. lines of that page the word "the,"
- A. I see none on page 49-40. times in what appears to be my handwriting, and On page 49-41, two corrections were made in red which I think I did. A comma was inserted in the second line, and in the third line the word mine, "same" was crossed out and replaced by "some." Other pencilled corrections on that page, such as adding S's to several words to pluralize them, I do not recognize as being mine.

I believe the red corrections on page 49-42 were done by me. These are a small line joining the "e" and the "n" of the word potentiometers in the third line. Again, I base this on the fact that that was done in red, and the other corrections which I can more clearly recognize were also done in red, so I would think I, quite probably, did that one, too, but I cannot really say I recognize that little line

X WR

as being mine. However, further on down the page the word "given" was crossed out with a red line, and the word "green" was written in red above it in what I think was my handwriting. In the next line the word, misspelled, "block" was changed to "black" by changing the typewritten "o" to a red "a." I think I did that. In the last few lines of that page the word "the," and t-h-e, was inserted four times in what appears to be my handwriting, and the misspelled word "across" was corrected in red by me, I believe. There are a few red corrections on page 49-43 which I believe were mine, but before I get to them, I probably should mention that on the previous exhibit, 49-42, there were, maybe, four minor corrections made in pencil which I don't think I did. On page 47-48 the pencil word "off" is in the third line. And now, returning to 49-43, the red corrections which I believe to be mine are: don't putting quotation marks around the word "correct" in the third line of the third paragraph, and after the following word, "path" inserting in red "through the maze." Two lines below that the spelling of the word "rectangle" was corrected in red. I believe I, These probably, did that. Again, a few minor corrections

X WPR

appear on that page in pencil, such as removing the dash between 9 and B and another dash between 11 and A in the third line, and the addition of a period in the second line. I don't think I did this.

On page 49-44 I see two little corrections in red which I think I did. In the eighth line from the top the letter "a" was crossed out, and in the ninth line the word "path" was pluralized by adding a red "s." Right under that is the word "considerably" in typing, which seems to have been drawn over and retyped with white paste. I didn't do that. In the very first line the word "and" was misspelled, and a little squiggly pencil line was made to make note of that. I don't think I did that.

On page 49-45 the pencil word "off" in the third line and "free" in the tenth line may be in my writing, but I'm not really sure. I don't recognize the other minor corrections, such as, again, deleting the dash between the number 15 and the letter B, for example, as mine.

On page 49-46, I believe the red corrections in the first line were done by me. These corrections consist of the word "sample" being crossed

X W/R

out and replaced by the word "simple" and quotation marks added around the word "ghost." The third paragraph on that page which is written in pencil as opposed to the typing of the first two paragraphs does not seem to be in my handwriting or, to be more specific, is not in my handwriting. As far as the spots

Q. Do you recognize whose handwriting it is? Looks like

A. No. One time they may have been round spots done

Q. Would you now take the group of drawings stapled together and identified as Exhibits 49-47 through 49-70

Q. and advise us if you made any entries or corrections on any of those and, if so, would you tell us what

A. they were and whether there were others that you did not make? It is not necessary that you go into detail on the others. Cross out what was figure 1A in the

upper left corner. (Documents handed to the witness by Mr. Welsh.) Q.

Q. Could you go on? THE WITNESS: All right. On what is labeled Exhibit 49-47 I recognize some corrections as mine. They seem to have been done in red pencil. They are: in figure 1, the addition of the words "show as flexible cable" and a red arrow and a wiggly line replacing the group of lines labeled as 12. Similarly,

at the bottom I added the words in parentheses "show as flexible cable - looks now like rigid rod" and lines from these words going up to where I crossed out the lettering drawn solid lines and replaced them with waving red lines. There are other corrections on this page which I think were not mine. As far as the spots labeled as 20₁ and 20₂ in figure 1, it looks like at one time they may have been round spots done in red. However, I can't recognize them as being mine or anyone else's. (question off the record.)

Q. (By Mr. Welsh.) Did you cross out the name Ralph H.

Baer and print over it William T. Rusch? recognize two

A. I don't think so. I don't recognize that as my own, writing, done in a red ball point pen as contrasted

Q. And did you cross out what was figure 1A in the upper left corner of Exhibit 49-47? these corrections.

A. I don't think so. believe I made on this page several

Q. Could you go on and indicate any corrections on any of the other pages? arrow I added the words "spot 1

video signal." In the lower right-hand corner of Exhibit 49-49 your name appears with the date 2/2/68.

Is that in your handwriting? signal" with an arrow.

A. I believe it is, yes. several plates the original.

59 Q. Does that correspond to page 19 of Exhibit 46? at spot

A. I would say yes. ...

60 Q. Except for the corrections, of course? ... does

A. Yes. ...

61 Q. And similarly, does Exhibit 49-50 correspond to page

20 of Exhibit 46 except for the changes which have

been made? ... 49-51,

A. I believe so. ... make,

MR. WELSH: Off the record.

(Discussion off the record.) ... 22

2 Q. (By Mr. Welsh.) O. K. Would you go on? ... on

A. On page -- or, rather, Exhibit 49-51 I recognize two corrections as being in my handwriting. These were, apparently, done in a red ball point pen as contrasted to a more reddish pink, looks like a felt magic marker pen, which was used for some of the other corrections.

7 The corrections I believe I made on this page were an arrow pointing to the output of the spot 1 coincident gate, and next to the arrow I added the words "spot 1 video signal." Similarly, at the output of what was originally called "spot N coincidence gate" I added in red the words "spot 2 video signal" with an arrow. It does appear that in several places the original

N's which extrapolated this system to an N spot system were changed by pencilled 2's over the N's. the changes

Q. Except for the corrections on that page 49-51, does that correspond to page 21 of Exhibit 46? the same?

A. I believe it does, yes. Exhibit 46? Would it be similar

Q. Would you go on, please? appearing on 49-54? etc. etc.

A. You just wanted me to note, like on this Exhibit 49-51,

Q. that there are other corrections that I didn't make,

A. but I couldn't identify them all. my writing on Exhibit

Q. Excuse me. Does Exhibit 49-52 correspond to page 22

Q. of Exhibit 46 except for the changes which appear on

Q. 49-52? as page 25 of Exhibit 46? correct?

A. That is correct. It is possible that some changes

Q. I take it you did not find any corrections made by

A. you on Exhibit 49-53? or someone who draws arrows and

A. That is correct. Above the bilateral gate

Q. Is that exhibit a copy of page 23 of Exhibit 46, except

for the changes made on Exhibit 49-53? they were not

A. Either that or they are both copies of the same

original, but they do appear to be identical except

for the changes you mention. ball point as C₁ and C₂,

Q. And page 23 of Exhibit 46 has a "Company Private

Data" stamp on it that, I think, doesn't appear on

49-5, does it? 190 and 191.

A. That is correct. I do not recognize any of the changes on 49-54 as being made by me. A description?

Q. Does 49-54 appear to have been copied from the same document as page 23 of Exhibit 46? Would it be similar except for the changes appearing on 49-54? With the

A. Yes. A notation of the diagrams on Exhibit 49-57 other.

Q. Would you go on? the corrections that you noted? None.

A. I don't recognize any changes in my writing on Exhibit 49-55 nor on 49-56. Low paper, no. As far as some of

Q. Does 49-56 appear to have been copied from the same document as page 25 of Exhibit 46? Again?

A. Yes, I believe so. It is possible that some changes done in what looks like a red ball point pen on

A. 49-57 were done by me or someone who draws arrows and writes C's like I do. Above the bilateral gate

A. numbered 93 are two inserted arrows in red. All I can say about them is that I cannot say they were not my corrections. I would draw them that same way.

A. And over at the left, bottom, two capacitors were identified with, again, red ball point as C₁ and C₂, which may have been my doing. I'm not sure. They were since crossed out with what looks like blue ink,

and relabeled 190 and 191. my corrections. I note

72 Q. That corresponds to a correction you noted earlier, I believe, in the pages of the description? have been

A. Perhaps. Do you want me to continue, or do you want to look for them? of the line indicated - 1/2?

3 Q. I want to ask you if you had anything to do with the preparation of the diagrams on Exhibit 49-57 other than, possibly, the corrections that you noted? have

A. Yes and no. As far as the actual putting of the does pencil to this yellow paper, no. As far as some of the ideas incorporated here, definitely, yes. can't say

Q. Do you know who did prepare that drawing?

A. No. It appears to be your writing?

Q. Were you consulted during its preparation? at three

A. I don't remember. 11, I think, I can say is that it

Q. Would you go on, please? he looks like the kind of

A. On figure 11D are three minor, or what may be minor, corrections in what appears to be red ball point pen.

Q. That's on Exhibit 49-58? that thousands of people

A. Yes. If anyone had handed me this paper three weeks

A. ago out of this context, I don't think I'd claim that those were my corrections, but whereas I may have what done some of these others in the same red ball point,

it is possible these were my corrections. I note the little circle up at the upper left of the page is a picking, little detail which I might have been apt to have tried to correct if I had seen it. bit 49-

Q. That's at the end of the line indicated $\frac{dHn}{dt}$?

A. Yes. I can't really say whether any of the corrections in the next exhibit, 49-59, were made by me or not.

Figure 49-60 doesn't seem to have any corrections. The following exhibit, 49-61, does have the number 141 and a small curved line inserted in what appears to be red ball point pen. I can't say that that is not my writing.

Q. Does it appear to be your writing?

A. That's very difficult to say just looking at three numbers. About all, I think, I can say is that it could be. The curved line looks like the kind of line I might make, but there are probably thousands of other people who might make them the same way.

Q. You don't mean to imply that thousands of people ask looked at that group of drawings, do you?

A. I don't recall. On figure 13 -- excuse me. On Exhibit 49-62 the number 143 was drawn in twice in what appears to be red ball point pen. I don't think I did

that unless I was in a real hurry. I think I usually try to make 4's that look better than that, but, again, I'm not sure of that. I don't recognize any of the pencilled additions and/or corrections of Exhibit 49-63 as being done by me, nor do I recognize any of my writing on Exhibit 49-64, nor on 49-65, nor on 49-66, nor on 49-67, 68.

MR. WELSH: Would the reporter please change the number of Exhibit 49-70 to 49-69.

(Whereupon, the number on Exhibit 49-70 was changed to Exhibit 49-69.)

THE WITNESS: The exhibit which we've now relabeled 49-69 I think the only corrections which could possibly have been mine were those which appear to have been done in red pencil, but, again, these corrections are of such a nature that I feel other people may have drawn them in the same way I might have.

Q. (By Mr. Welsh.) Which corrections are those? I ask you to state it for the record, because it may not be clear from copies that are made.

A. What's red and what isn't, yes. Starting at the upper left-hand corner, or -- excuse me, if one turns

the page sideways so as to read all the labels vertically correctly, then in that upper left-hand corner there's a small circle with the notation $\text{cap } H_1$ and there to was a line going from that to what appears to be a box which was labeled 75. Inside the box are the words " H_1 gate." To the right of that box appears to be another pencilled box labeled 85 with the words inside "horizontal differentiator." Above the word "horizontal" someone, apparently, added in the word "gated" in blue pen. One of the corrections in the red pencil goes from that small circle next to $\text{cap } H_1$ right through the box numbered 75 and over to the box labeled 85. The box 85, itself, was emphasized by going over the original pencil rectangle in red pencil. A portion of the line going from the small circle labeled H_2 through the gate labeled 76 and to the box marked 85 was gone over in red, apparently, with the intent of crossing out box 76. Similarly, gates V_1 and V_2 is labeled as No. 77 and No. 78, respectively, have a red line going through them, or rather, two red lines, one each which appear to that connect their inputs to the box labeled 86, "vertical differentiator." For people who don't have this realize

starting with this page,
trying (at least) to correct
it thoroughly. In Rusch
(but without the exhibits) 5/26/76

52

original copy, I might say that above the word vertical in box 86 someone added the word "gated" in blue pen. There are some other scribbles in red which seem to indicate for some reason or other that the boxes 77 and 78 were to be eliminated from this diagram. There are red lines going from the output of box 81 to box 85 and box 86 with arrowheads at the latter two boxes. It is somewhat difficult to tell just what correction was being made there. Similarly, two red lines go by from the output of box 82 to box 85 and box 86 ending in arrowheads at these two boxes. Not really.

Q. Having noted the corrections which were made by you on various pages of Exhibit 49, do you now feel that you made a careful review of those papers at the time you made the corrections? signed this original which

A. Fairly careful, yes. sent office on that same date. I

Q. Did you review more than one draft of the application which was ultimately filed and resulted in the 284 patent?

(discussion off the record.)

A. I don't really remember. I'd like to talk to

Q. I show you what has been marked as Exhibit 47, that is, a certified copy of the file wrapper and contents of the application leading to the 284 patent. I realize

the signature is very faint, but I ask if you can recognize the signature on the page immediately following claims 180? The number of that page, also, is obscured, but the paper constituting that page is entitled "Oath, Power of Attorney and Petition," and could you tell us if that is your signature above the line under which appears the typewritten name

"William T. Rusch"? MR. WILLIAMS: No, I'd like to maintain that file (Document handed to the witness by Mr. Welsh.) MR. WELSH: O. K. Then say we

stipulate that you THE WITNESS: (Not really. Oath dated 5/15/69 and MR. WELSH: Mr. Williams, there is a copy, signed copy, of what appears to be that same document bearing the date 5/21/69, and I wonder if you'll stipulate that he signed this original which was filed in the patent office on that same date. I might say that there are other--a April 24, 1969. I

presume you wish to MR. WILLIAMS: Off the record. Is

(Discussion off the record.)

MR. WILLIAMS: I'd like to talk to Dick and Lou. I think we can stipulate after I talk to them and see. Exhibit, Exhibit 52/

MR. WELSH: O. K., I was going to

note that there are what appear to be two other executed copies of similar oath in this file, which was produced on behalf of Sanders marked D-2580, one ring bearing the date 5/15/69 and having an X crossed out.

I believe it would be desirable to have copies of these other oaths, unless you are willing to have the originals marked. Be furnished copies which may be.

MR. WILLIAMS: No, I'd like to maintain that file intact. I show you the last oath I referred to, which MR. WELSH: O. K. Then may we stipulate that you'll provide a copy of this oath dated 5/15/69 and that we may mark it as Exhibit 51?

MR. WILLIAMS: Yes, we'll so stipulate.

MR. WELSH: Also, there is another paper in the same file, numbered D-2580, appears to have been executed by Mr. Rusch on April 24, 1969. I presume you wish not to mark this as an exhibit also?

MR. WILLIAMS: That's true. I believe so.

MR. WELSH: Will you, then, stipulate that you will furnish a copy which we may identify as an exhibit, Sanders' Exhibit 52?

MR. WILLIAMS: Yes, we'll stipulate

A. that. not by comparing these two pages, because they're not the same.

Q. MR. WELSH: If there's any question about stipulation on the original of the file bearing the date 5/21/69 and Mr. Rusch's signature, then I notice that there is a copy of such an oath in the same file, D-2580, and if that can't be marked as an exhibit, that we be furnished copies which may be.

A. signature, but it MR. WILLIAMS: Yes. it would be

Q. (By Mr. Welsh.) Mr. Rusch, I show you the last oath I referred to, which bears a clear date 5/21/69, and what appears to be your signature. Is that your signature?

A. MR. WILLIAMS: 51.

Q. (By Mr. Welsh.) On (Document handed to the witness by Mr. Welsh.) signature which appears on that document?

A. THE WITNESS: Yes, I believe so.

Q. (By Mr. Welsh.) And did you place that date on there?

A. I think so. THE WITNESS: Just for the record,

Q. And did you place the date on there on that date?

A. I believe so. Is that correct?

Q. Can you make out any of the signature on the page following claim 80 in Exhibit 47, and, perhaps, compare it with the signature which I just showed you to determine whether that is your signature on Exhibit 47?

A. Well, not by comparing these two pages, because they're not the same page.

Q. I'm not suggesting that one is a copy of the other.

A. I am just asking if by comparing what you can see

A. of the signature in Exhibit 47, you can determine that that is your signature? It is my writing, too. I

A. What I can see of it looks like it could be my signature, but it is rather vague, and it would be

Q. easier if I could see an original. The left margin of

Q. I show you another document, a copy of which we've

A. agreed to mark as Exhibit 50, and ask if --- the

A. would you read it, MR. WILLIAMS: 51.

Q. (By Mr. Welsh.) Oh. As Exhibit 51 and ask if that is your signature which appears on that document?

A. Do you recognize this (Document handed to the witness by Mr. Welsh.)

Q. I refer you, now, to THE WITNESS: Just for the record, not to be too picky, this hasn't been labeled as Exhibit 51, yet, is that correct? document?

A. Again, I'll point to MR. WELSH: That's correct, but if we have agreed that a copy of it will be identified as Exhibit 51, to have my signature on it along with the date 4/24/69, THE WITNESS: Based on that, this

page that is in my hand now does have my signature down near the bottom, yes.

(By Mr. Welsh.) When did you place your signature there?

I believe it was, probably, on the date shown as 3/15/69. I believe that is my writing, too. I then, can't recall writing both on the same date, but I quite probably did.

Is there a notation in red ink in the left margin of that page?

Yes.

Would you read it, please?

It says "The formal papers were re-executed on 5/21/69." And then it looks like some initials under that.

Do you recognize that handwriting?

Not really.

I refer you, now, to the document in file No. D-2580 which we have agreed to identify as Exhibit 52 and ask if your signature appears on that document?

Again, I'll point out that this has not been identified as that exhibit yet, but this page I'm holding in my hand does seem to have my signature on it, along with the date 4/24/69, which I believe is in my handwriting

and was quite probably done on the same day. d claims

Q. You said that seems to be your signature. Is it,

A. actually, your signature?

A. A rather sloppy version of it, but I think it is my signature, yes. you sign?

Q. Does that document also contain a note, handwritten,

Q. in the left margin? Is that phrase appearing in

A. Yes. It says "These papers were re-executed by Mr. Rusch on May 15, '69," again, with some initials underneath it which may be an LN or an SM, something

A. like that. I don't recognize the writing nor the

Q. signature. Always prior to signing each such oath

Q. What were the circumstances of your executing an oath to this file on the three different occasions of

A. April 24, 1969, May 15, 1969, and May 21, 1969?

A. I don't really remember, specifically, you did not read

Q. Do you remember at all? claims referred to in an oath

A. In that I see these pages with my signature, and on almost all of my patent applications or all of my patent

A. applications sooner or later I have been called by

Q. the legal department to sign such papers. of the

Q. Each of these oaths contains the statement by you

"That I have read the foregoing specifications and

A. claims." Did you read the specifications and claims on each of the dates which the various oaths bear?

A. I don't recall.

Q. Is it your practice in applying for a patent to read all the papers you sign?

A. Yes.

Q. Are you familiar with that phrase appearing in oaths or declarations which you have signed in connection with patent applications filed in your name as an inventor?

A. Yes.

Q. Have you always prior to signing each such oath actually read the specifications and claims referred to in the oath or declaration?

A. I believe so, yes.

Q. Has there been any occasion on which you did not read the specifications and claims referred to in an oath or declaration for an application for patent in which you were named an inventor?

A. I don't think so.

Q. Is it not correct, then, that in the case of the application for your patent No. 3659284 that you read or --, and petition dated 4/24/67, a copy of --

A. Excuse me, 3659? Identified as Exhibit 52?

Q. 284. I believe that date is 4/24/69.

A. I thought you neglected the 5.

Q. That you read at least four either drafts or final specifications and claims.

MR. WILLIAMS: Objection to the question. It is certainly not a fair characterization of what his testimony has been so far.

THE WITNESS: Shall I answer? Would you repeat the question, please? and based on

(The last question was read back by the reporter.)

THE WITNESS: I don't understand that question. Would you rephrase it or repeat it, please?

Q. (By Mr. Welsh.) You did review, did you not, a draft of the application which was marked as Exhibit 49?

A. Yes, I believe I can say through my recognition of my handwriting that we went through that I must have reviewed that.

Q. And did you read the specifications and claims in connection with your execution of this oath, power of attorney, and petition dated 4/24/67, a copy of

which is to be identified as Exhibit 52? as the claims.

A. I believe that date is 4/24/69. many attorneys,

Q. Excuse me. that they know a lot more about the legal

A. Yes, I believe I did. to the best of my ability, I

Q. And did you read the specifications and claims carefully
referred to in the oath, power of attorney, and

petition bearing your name and the date 5/15/69, a

Q. copy of which is to be marked as Exhibit 51? and

A. I can't actually recall doing this, but I am quite
sure I did in that I signed this oath, and based on

A. that, I'm quite sure I did read them. that my

Q. Again, in connection with the oath, power of attorney
attorney, and petition in this same file, D-2580, bearing
the date 5-21/69 and your signature, did you read the
specifications and claims referred to in that document?

A. I believe so, yes. didn't understand. and I reviewed

Q. Is it your practice in reading specifications and
claims before signing an oath for an application for
patent in your name as inventor to read the specifica-
tions and claims and oath carefully each time or to
rely more on the attorneys who have prepared it so that
you do not read it carefully? you reviewed the papers

A. I'd say that I read it carefully, but, as I indicated

before, in many of the legal areas such as the claims, I have put some faith in the company attorneys, and assuming that they know a lot more about the legal areas than I do. But to the best of my ability, I think I tried to read the whole thing fairly carefully and understand it as much as my background would permit.

(Discussion off the record.)

Q. Do you consider the oath, power of attorney, and petition to be a document in the legal area such as patents which you spoke about? or of the Disclosure?

A. To some extent, yes, although realizing that my personal integrity is at stake above my signature there I, perhaps, exercise special care in reading the oath, but I would still have to put some trust in the attorneys to not let me sign anything of a ridiculous nature that I didn't understand. Q. Now you reviewed that draft, what was MR.-WELSH's answer to the previous question regarding the reading

A. of the specifications and claims? reviewed the draft, but we don't have it (The referred to answer was read back by the reporter.) location for your 784 patent was

Q. (By Mr. Welsh.) At the time you reviewed the papers in Exhibit 49 and made the corrections therein and

in Exhibit 49 and made the corrections therein and

at the subsequent times when you executed these various oaths were you satisfied that the specifications and claims accurately described your invention?

A. I think so. I can't recall, specifically, but I have no vivid recollection of being unhappy with it, either.

MR. WELSH: Off the record.

(Discussion off the record.)

Q. (By Mr. Welsh.) Referring to Exhibit 49-1, the statement in the first sentence of the first paragraph there under the title "Abstract of the Disclosure" reads "Apparatus and methods are herein disclosed for use in conjunction with standard monochrome and color television receivers for the generation, display and manipulation of symbols or geometric figures upon a screen of the television receiver for the purpose of playing games." As of the time when you reviewed that draft, what was -- what did "television receiver" mean to you?

A. Well, first, I don't know when I reviewed the draft, but we don't have to establish that date, exactly.

Q. Was it before the application for your 284 patent was filed? What did the term "television receiver" mean to

A. Yes, I believe so.

spelling w/r 5/26/76

Q. It wouldn't have been afterward, would it? ~~cluding~~
A. I doubt that very much. ~~not most people have in their~~
Q. Wasn't it likely to have been the draft submitted
Q. with Mr. Seligman's letter or message of 28 and 29,
February 12, 1969, a copy of which has been marked
as Exhibit 50?

MR. WILLIAMS: I object to the
question. It calls for pure speculation. ~~understand~~

~~what it means.~~ THE WITNESS: I can't really tell
that. I think this Exhibit 50, the pink thing, was
under the big clip holding another bunch of papers
together and was not attached to this Exhibit 49 which
I'm ^w ~~not~~ ^{wr} holding, so I can't really tell what was at
submitted to me with that pink paper labeled Exhibit
No. 50. MR. WILLIAMS: If you recall, Mr.

Q. (By Mr. Welsh.) So there's no confusion, let's refer
to the Exhibit 11 which is a copy of the 284 patent,
and under the heading background -- I'm sorry, under
the heading "Abstract" on the front page appears the
same statement which I just read out of Exhibit 49-1,
As of the filing date of this application, May 27,
1969, what did the term "television receiver" mean to
you? ~~on. A television receiver meant something that~~

spelling w/r 5/26/76

A. I believe what it means to most people, including laymen, the kind of TV set most people have in their living rooms with which ^{we} they watch TV programs. this

Q. Is it as referred to in column 1, lines 28 and 29, "used as a display means for programming originating at a studio"? programs.

2. (By Mr. Welsh.) AS MR. WILLIAMS: I object to the question. I find it vague, and I don't understand what it means. people had in their living rooms

Q. (By Mr. Welsh.) I'll restate the question. Did the term "television receiver" at the time when the application for the 284 patent was filed mean to you "a display means for programming originating at a studio"? (The last question was read back

by the reporter.) MR. WILLIAMS: If you recall, Mr. Rusch. THE WITNESS: Yes, I believe so.

Q. (By Mr. Welsh.) AS THE WITNESS: Please repeat that question. "television receiver" have any different meaning to you then (The last question was read back by the reporter.)

Q. I believe you state THE WITNESS: No more than if you own a car you could say you can only drive it to Boston. A television receiver meant something that

Punctuation w/R 5/26/76

A. could be used in a home for receiving RF waves, which
would result in television programs being seen, but,
obviously (to me, at least) ^{we} for some time before this
date I had been involved with using a television
receiver for displaying other things other than
television programs. It may have been that a copy

Q. (By Mr. Welsh.) As of the filing date of the our legal
application for the 284 patent, to you, was the TV
sets that most people had in their living rooms not
capable of receiving RF signals and displaying
broadcast programs? Did you read it?

A. I could make assumption. MR. WILLIAMS: Would you repeatedly
that question? after the patent issued?

A. I don't remember. (The last question was read back
by the reporter.) Now with respect to the patent after

you read it? THE WITNESS: Yes, I believe so.

Q. (By Mr. Welsh.) As of that same time did the term
"standard television receiver" have any different you
meaning to you than the term "television receiver"?

A. I don't think so. Nothing, specifically. I

Q. I believe you stated earlier, possibly yesterday, that
after the -- that you had occasion to read the 284
patent after it was issued?

Punctuation w/P 5/26/76

A. I believe that's correct. ~~ago~~, just as if you had written
Q. Do you recall when that was? ~~in your name on it.~~ I
A. Not specifically, no. ~~helping to contribute to this~~
Q. What were the circumstances that caused you to read
the patent after it issued? ~~whatever occasion it was,~~
A. I can't recall exactly. ~~It may have been that a copy~~
A. was sent to me through the Sanders mail from our legal
department, or I may have read it down here at
Q. corporate headquarters if I was down here. ~~I don't~~
A. really remember the exact circumstances. ~~specifically.~~
Q. Do you recall why you read it? ~~I think I may have been~~
A. I could make assumptions, but I don't recall, exactly.
Q. Was it shortly after the patent issued? ~~as have an RF~~
A. I don't remember. ~~I don't recall when this might have~~
Q. Did you do anything with respect to the patent after
you read it? ~~I don't recall specifically, that it ever did~~
A. You mean the same day, the same week or --
Q. Well, as a result of your reading the patent, did you
do anything? ~~at to broaden this idea to display~~
A. I don't remember doing anything, specifically. ~~I, I~~
may have. ~~that would simplify the circuitry and make~~
Q. What reason might you assume that you had for reading
the patent? ~~idea to submit another patent?~~

A. Well, one would be sheer ego, just as if you had written an article for a magazine with your name on it. I was somewhat proud of helping to contribute to this program. by someone else?

Q. When you read the patent on whatever occasion it was, were you pleased with the language in it?

A. I don't recall, specifically. I guess moderately pleased, at least. I don't recall, or was that suggested to

Q. Were you dissatisfied with it in any respect?

A. I may have been. I don't remember, specifically. Somewhere along the line I do think I may have been unhappy with restricting these deflection type inventions to a display device which does have an RF front end. I don't recall when this might have happened.

Q. Do you recall that specifically, that it ever did happen?

A. I think, yes, in that I do believe we later submitted another patent to broaden this idea to display, then devices which might not have RF sections, because, if anything, that would simplify the circuitry and make it more economical for us.

Q. It was your idea to submit another patent?

A. I don't remember.

Q. Was it suggested by someone else?

A. I think it probably was.

Q. Suggested by someone else?

A. I think so.

Q. Did the idea that the patent, the 284 patent, might be restricted to display devices with RF sections occur to you independently or was that suggested to you by someone else?

A. I can't recall whether it was my idea or whether it might have been Ralph's, Mr. Baer's, or the Sanders legal department. I don't really remember.

Q. What part of the patent restricts the patent to display devices which have RF sections?

A. Really, nothing.

Q. You don't know of anything? Perhaps, these words "television" or this word, "tele" MR. WILLIAMS: I think he gave the answer to the question.

Q. (By Mr. Welsh.) Well, if nothing restricted it, then why were you unhappy that it was restricted to display devices with RF sections?

A. Would you repeat the question before this one again?

(The referred to question was read

back by the reporter.) so that those receivers could be used actively by THE WITNESS: That's the question. I answered nothing to. All right. Let me go back to that one. When you asked me that question, I was thinking circuitwise and hardwarewise. Now, could this hardware or these techniques described here be used on a display device without an RF section? Perhaps I was answering the wrong question, but I was speaking of that, that there is nothing in these techniques which restricts them to display devices with RF front ends such as what I have considered a television receiver to be. And if anything, the circuitry would be simpler in that these RF oscillators and modulators would not be required in devices that didn't have RF front ends. I think, to answer your question more carefully, it was, perhaps, these words "television" or this word, "television," which, perhaps, bothered me the most in that, to me, that does imply a display device with an RF front end, which would seem to me to limit, at least, the patent coverage of this device, and I didn't feel that it was technically limited.

Q. (By Mr. Welsh.) Weren't the games resulting from the TV game project intended to be used with television

receivers in the homes so that those receivers could be used actively by the viewer rather than as a passive device?

That was certainly one of the intents, yes.

And that's expressed, is it not, in column 1 of the 284 patent in lines 51 through 55?

(Document handed to the witness by Mr. Welsh.)

THE WITNESS: I forget the exact wording of that question. I believe that answer was yes. Perhaps we should repeat the question so I could be more accurate.

MR. WELSH: If you have any doubts, we should. Would you please re-read the question?

(The last question was read back by the reporter.)

THE WITNESS: I believe, again, yes, that was one of the intents.

(By Mr. Welsh.) It was a major intent, was it not, to take advantage of the large number of home television receivers already in use and thereby provide a ready market for the TV games?

Yes.

Note ^{was} written while attempting to correct this on May 26, 1976
William T. Rusch

MR. WELSH: I see we're past 5:00

5/26/76 o'clock, so let's break for the evening.

NOTE: The material herein from page 23 to 51 is almost impossible to correct accurately without William T. Rusch ^{Deponent} ^{5/28/76}

page by page examination of all the exhibits. Therefore, I cannot vouch for the accuracy of the stenographer doing these pages. I did try my best to correct the other pages herein. WTR 5/26/76

THE STATE OF New Hampshire
COUNTY OF Hillsborough

SS.

Subscribed and sworn to before me this 28

day of May, 1976.

VIRGINIA J. MURPHY, Notary Public

Virginia J. Murphy
Notary Public
May 26, 1976

Justice of the Peace and/or
Notary Public

* See also
note in
Depo. 8, p. 47